Reconsideration and withdrawal of the rejections of record are respectfully requested.

Summary of Status of Amendments and Office Action

In the present amendment, claim 4 is amended, and claim 7 is added. Therefore, claims 1-7 are pending in the application with claims 1, 3 and 6 being independent.

In the Office Action, claims 1-6 are rejected under 35 U.S.C. § 101 as not supported by either a specific asserted utility or a well established utility.

Claims 1-6 are rejected under 35 U.S.C. § 112, first paragraph, because one of skill in the art would not know how to use the claimed invention as the invention is not supported by either a specific asserted utility or a well established utility.

Claims 3-4 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite.

Claims 3-6 are rejected under 35 U.S.C. § 112, first paragraph, as not enabled.

Claims 1-6 are rejected under 35 U.S.C. § 112, first paragraph, as not enabled for apoptosis related proteins beyond 14-3-3 and NIK/HGK.

Claims 1-2 and 6 are rejected under 35 U.S.C. § 112, first paragraph, as not containing a sufficient written description.

Explanation and Support for Amendments

Applicants submit that each of the foregoing amendments is fully supported by the specification, *e.g.* at pages 5-7.

Response to §§ 101 and 112, First Paragraph Rejection

Claims 1-6 are rejected under 35 U.S.C. §§ 101 and 112, first paragraph as lacking a specific asserted or well established utility, and therefore, one of skill in the art would not know how to use the claimed invention. The Office Action asserts that there is no art of record which discloses that effecting the ability of NADE to bind an apoptosis related protein could lead to the treatment, prevention and/or diagnosis of an apoptosis-related disease. Further, the Office Action asserts that the specification does not disclose any objective evidence regarding the successful treatment, prevention and/or diagnosis of any disease in any subject by the administration of the claimed medicament into the subject.

In response, Applicants direct the Examiner's attention to the documents submitted with the Supplemental Information Disclosure Statement filed concurrent with this Response. These articles disclose the relationship between NADE and the apoptosis signal transfer pathway via p75NTR. *See*, Science, Vol. 261, pp. 345 (1995); Nature, Vol. 383, pp. 166 (1996); P.N.A.S., Vol. 91, pp. 6501 (1994); J. Biol. Chem., Vol. 275, pp. 17566 (2000). Further, the involvement of p75NTR in apoptosis in some nervous system diseases, including Alzheimer's disease, has also been shown. *See*, J. Neuroscience, Vol. 20, pp. 9096 (2000); P.N.A.S., Vol. 91, pp. 10703 (1994); J. Clin. Invest., Vol. 100, pp. 2333 (1997). As these references reveal, apoptosis is involved in nervous system diseases, and a signal relating to apoptosis is transferred from NGF to p75NTR and further to NADE. After successive signal transfers, gene expression regulatory pathway is activated. One of ordinary skill in the art, when faced with this array of evidence, would understand that a protein which binds to NADE may have a utility in regulating apoptosis

as a method of treating several diseases.

Further, while inventions that are injurious to the well being, good policy, or sound morals of society are unpatentable, the threshold of utility is not high: an invention is "useful" under § 101 if it is capable of providing some identifiable benefit. Juicy Whip, Inc. v. Orange Bang et al., 185 F.3d 1364, 1366-1367 (1999) (citing Brenner v. Manson 383 I.S. 519, 534 (1966); Brooktree Corp. v. Advanced Micro Devices, Inc., 977 F.2d 1555, 1571 (Fed. Cir, 1992). To violate § 101, the claimed device must be totally incapable of achieving a useful result. Id. A test for utility is whether the invention is incapable of serving any beneficial end. Id.

Here, Applicants have asserted that the claimed invention has utility in diagnosing, treating and/or preventing several diseases. Further, the documents of record make clear that NADE plays an important role in the apoptosis pathway, and any protein which binds to NADE would be a candidate for diagnosing, treating and/or preventing diseases involving apoptosis. The current application discloses using these candidates as a pharmaceutical agent and/or a diagnostic tool. One skilled in the art would therefore understand the utility of, and would know how to use, the claimed invention once enlightened by the present specification.

Thus, Applicants respectfully submit that they have provided a specific asserted utility for the claimed invention, and have also shown its well characterized utility. Applicants therefore respectfully request that the Examiner withdraw the rejection of claims 1-6 under 35 U.S.C. §§ 101 and 112, first paragraph.

Response to §112, second paragraph Rejections

Claims 3-4 are rejected under 35 U.S.C. § 112, second paragraph as being indefinite. The Office Action asserts that claim 3 is indefinite because it is not clear how detecting the interaction in the presence of a medicament is indicative of screening.

In response to the rejection of claim 3, Applicants respectfully direct the Examiner's attention to pages 7-10 of the specification which discusses screening medicaments by detecting the interaction between NADE and an apoptosis related protein. Applicants respectfully assert that the claims, when read in light of these passages of the specification, particularly point out and distinctly claim the subject matter of the invention.

The Office Action asserts that claim 4 is indefinite for the recitation of "effect." This rejection is believed to be moot in view of the foregoing. Specifically, claim 4 is amended to recite that the effect is to inhibit or increase the interaction of NADE to apoptosis related proteins.

Therefore, Applicants respectfully request the withdrawal of the rejection of claims 3-4 under 35 U.S.C. § 112, second paragraph.

Response to § 112, First Paragraph Rejections

Claims 3-6 are rejected under 35 U.S.C. § 112, first paragraph as allegedly not described in the specification in such a way as to enable one skilled in the art to make and/or use the invention. The Office Action asserts that it is not clear what effect the medicament must have on the NADE/apoptosis related protein interaction to allow one of skill in the art to use the claimed

method for a medicament that will function as contemplated.

In response, Applicants respectfully submit that the amendment to claim 4, and the addition of new claim 7, makes clear what effect the medicament must have on the NADE/apoptosis related protein interaction to allow one of skill in the art to use the claimed method for a medicament that will function as contemplated.

Therefore, Applicants respectfully request the withdrawal of this rejection of claims 3-4.

Claims 1-6 are rejected under 35 U.S.C. § 112, first paragraph because the specification does not enable for an agent beyond 14-3-3 and NIK/HGK and that the agent may be used to screen for a medicament. The Office Action asserts that the specification does not enable one of skill in the art to use the invention commensurate in scope with these claims.

In contrast to the assertions in the rejections, the Examiner is reminded that the burden is not on Applicants to establish that the claims are enabled, but is on the Patent and Trademark Office to support an enablement rejection using technical arguments. See, for example, "Training Materials for Examining Patent Applications with Respect to 35 U.S.C. Section 112, First Paragraph -- Enablement Chemical/Biotechnical Applications" and In re Marzocchi, 439 F.2d 220, 224, 169 USPQ 367, 369 (CCPA 1971).

In particular, it is noted in Marzocchi, in reversing the rejection, the Court noted that the Patent Office should not be concerned with the breadth of the claims per se and that the burden of showing lack of enablement is on the Patent Office:

> Turning specifically to the objections noted by the board as indicated above, it appears that these comments indicated nothing more than a concern over the breadth of the disputed term . . . . The only relevant concern of the Patent Office under these circumstances should be over the truth of any such assertion.

> As a matter of Patent Office practice, then, a specification disclosure which contains a teaching of the manner and process of making and using the invention in terms which correspond in scope to those used in describing and defining the subject matter sought to be patented must be taken as in compliance with the enabling requirement of the first paragraph of §112 unless there is reason to doubt the objective truth of the statements contained therein which must be relied on for enabling support. . . .
>
> [I]t is incumbent upon the Patent Office, whenever a rejection on this basis [lack of enablement] is made, to explain why it doubts the truth or accuracy of any statement in a supporting disclosure and to back up assertions of its own with acceptable evidence or reasoning which is inconsistent with the contested statement.

Id. at 369-70 (emphasis in original). Therefore, the burden of showing lack of enablement is on the Patent Office.

In Ex parte Reese, the examiner rejected claims reciting a chemical formula "wherein R^1 represents C_1 - C_4 alkyl, R is the deoxy residue of a protected carbohydrate compound, R being different from R' [sic R^1?], and Ar is a monocyclic aryl group having an electron-withdrawing substituent which renders the group acid-labile." The examiner believed that the scope of enablement provided in the applicant's specification is not commensurate with the scope of protection sought. The examiner argued that the claims were broad and that the specification required more working examples.

In reversing the Examiner's rejection, the Board reasoned that an enablement rejection cannot be based upon subjective opinions, but must be based upon evidence or sound scientific reasoning. Id. at 1222. The Board also stated that recent case law puts the burden on the examiner. Id. at 1223.

In the present case, Applicants provide an enabling description of the claimed subject

matter so that one having ordinary skill in the art would be able to practice Applicants' invention with, at most, routine experimentation. In particular, Applicants have provided sufficient guidance in the application how to screen medicaments which inhibit or increase NADE's binding to apoptosis related proteins, or which have a pharmacological effect on an NADE-apoptosis related protein complex. Moreover, the Examiner's attention is directed *inter alia* to Applicant's specification, beginning at page 5-7, wherein enabling guidance is provided with respect to 3 additional apoptosis related proteins which are suspected of being capable of binding to NADE. The Examiner is respectfully reminded that an Applicant is not required to exemplify every limitation of a claim, but merely a representative number thereof. Here, Applicants have fully exemplified 2 apoptosis related proteins which bind to NADE, and discussed three others. Applicants respectfully submit that this is sufficient under the appropriate legal standards as set forth by the Board.

Applicants therefore request the withdrawal of the rejection of claims 1-6 under 35 U.S.C. § 112, first paragraph.

Claims 1-2 and 6 are rejected under 35 U.S.C. § 112, first paragraph as not containing a written description of the invention in such full, clear, concise and exact terms or in sufficient detail that one skilled in the art can reasonably conclude that applicant had possession of the claimed invention at the time of filing. The Office Action asserts that the specification contains no examples that conveys to one of skill in the art that the applicant was in possession of any agent that may be used to screen for medicament or any medicament for the treatment, prevention and/or diagnosis of an apoptosis-related disease. Finally, the Office Action asserts

that there is no actual reduction to practice, as there is no evidence regarding the successful treatment, prevention, and/or diagnosis using an agent or medicament or any exemplification that any medicament was chosen by the method of claim 3.

In response, Applicant note that page 21 contains an example showing that NGF promotes the binding of NADE with 14-3-3, an apoptosis related protein. Thus, the assertion that the specification does not contain any examples is incorrect.

Further, the Examiner's attention is respectfully directed to In re Kaslow, 217 USPQ 1089 (Fed. Cir. 1983), in which the court, quoting the U.S. Patent and Trademark Office Board of Appeals, stated, at 1096:

> The test for determining compliance with the written description requirement is whether the disclosure of the application as originally filed reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter, rather than the presence or absence of literal support in the specification for the claim language. (Emphasis added). In re Edwards, 558 F.2d 1349, 196 USPQ 465 (CCPA 1978); In re Herschler, 591 F.2d 693, 200 USPQ 711 (CCPA 1979).

Thus, the application must only reasonably convey to the skilled artisan that the inventor had possession of the claimed subject matter at the time of filing the application, and it is not necessary for the originally filed application to provide literal support.

Applicant further submits that the weight of authority supports Kaslow, as exemplified by, e.g., Staehlin v. Secher, 24 USPQ2d 1513 (BPAI 1992), in which the Board stated, at 1519:

> The inquiry into satisfaction of the written description requirement is factual and depends on the nature of the invention and the

> amount of knowledge imparted to those skilled in the art by the disclosure. In re Wertheim, 646 F.2d 527, 191 USPQ 90 (CCPA 1976). Satisfaction of the 'written description' requirement does not require in haec verba antecedence in the originally filed application. In re Lukach, 440 F.2d 1263, 169 USPQ 795 (CCPA 1971).

Thus, satisfaction of the written description depends upon a factual inquiry into the nature of the invention and the amount of knowledge imparted by virtue of the originally filed application.

In view of Kaslow and Staehlin, in this case Applicant respectfully submits that the failure to have "literal support" in the original application for additional agents which effect the NADE-apoptosis related protein interactions is not a failure to comply with the written description requirement. In this regard, Applicant respectfully submits that the originally filed application "reasonably conveys" to the skilled artisan how to screen for additional agents beyond NGF, and sets forth the criteria to choose agents which could be used as a medicament as claimed in claim 6.

In view of the above, Applicants respectfully request that the rejection of claims 1-2 and 6 under 35 U.S.C. § 112, first paragraph be withdrawn.

CONCLUSION

For the reasons advanced above, Applicants respectfully submit that all pending claims patentably define Applicants' invention. Allowance of the application with an early mailing date

of the Notices of Allowance and Allowability is therefore respectfully requested.

Should the Examiner have any further comments or questions, the Examiner is invited to contact the undersigned at the below-listed telephone number.

Respectfully submitted,
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MARKED UP COPY OF AMENDED CLAIMS

4. (Amended) The method according to claim 3, wherein the medicament tested is selected as a candidate of an effective medicament when the medicament [has an effect on] inhibits or increases the interaction between NADE and an apoptosis related protein which binds to NADE.